

## Chapter X - Findings and Implications



## Summary Findings

Surface freight transportation via truck and rail will be vital to the SCAG region under any current and future scenario. The efficiency of freight transportation affects the prospects for regional job creation, the strength of the local economy,

The trucking industry is facing difficult times in Southern California and elsewhere. Congestion, costs, and periodic driver shortages are all increasing.

Diversion of truckload and LTL traffic to rail carload, transload, or intermodal service is a logical step to promote long-term efficiency and minimize congestion and emissions.

- Increased carload rail service would reduce congestion and emissions, but has practical access and logistics limits
- Truck-rail transloading has significant potential to increase the use of rail carload service for line-haul freight transportation and decrease truck VMT and emissions on regional highways. Due to the need for local pick up and delivery, however, transloading may not reduce the number of local/urban truck trips.
- Intermodal transportation likewise has significant potential to mitigate emissions and congestion on major interregional access routes. The intermodal industry has already been successful in serving the long-haul markets to and from the SCAG region, and there may be limits to further market penetration. Again, the need for local/urban pick up and delivery trips would remain.
- The regional rail network has reserve capacity at present, but there are limits on the ability of the rail network to expand service. Railroads will be reluctant to devote scarce capacity and capital to shorter-haul traffic.

Diversion of truck traffic to rail, therefore, is a positive step but not a cure-all.

## Regional Trucking Outlook

The trucking industry is facing difficult times in Southern California and elsewhere.

Increased congestion is a double-edged sword:

- By forcing trucking firms and their drivers to take more time for the same transportation service, congestion cuts productivity and raises costs.
- By lengthening delivery times and diminishing reliability, congestion hurts trucking service quality at the same time customers are demanding “better, faster, and cheaper” service.
- Freight movement growth and longer trips times due to congestion require more truck drivers at the same time the population pool of eligible drivers is shrinking and better employment options are growing.
- Congestion increases fuel use and emissions at the same time diesel trucks are being held to more stringent emissions standards and fuel prices are increasing

Existing plans and programs would not make appreciable improvements in trucking conditions.

- Major regional truck routes are approaching capacity limits and will require substantial investments to keep trucks and autos moving at acceptable service levels.
- The overall feasibility, cost, and performance of exclusive truck lanes is still open to question, as analysis has only been completed on one route.
- The vast majority of goods-related investments and improvements contemplated in the 2002 SCAG Regional Transportation Improvement Plan are aimed at railroad grade crossings or conventional highway and street improvements that benefit autos as well as trucks.

## Carload Service Potential

- Carload rail service (as opposed to intermodal service) is best suited to:
  - Bulk movements of raw materials (coal, grain, aggregates)
  - “Pipeline” movement of industrial products (steel, chemicals, lumber)
- Direct carload service requires direct rail access, and is largely limited to major manufacturing and processing plants such as refineries, auto assembly plants, power plants, etc.
- Carload service, and unit train service in particular, will continue to grow with the customer base of heavy industrial activity, but is unlikely to attract new customers unless new plants are built with rail access
- The potential for diversion of truckload traffic to direct carload service is therefore very limited, and rests with the initiatives of the railroads and their customers.



## Rail/Truck Transloading Potential

- It is estimated that rail/truck transloading could divert on the order of 132,000 annual long-haul trucks from regional highways and reduce truck VMT by over 23 million at year 2000 traffic levels.
  - The potential for conversion of truckload movements to rail carload service lies almost exclusively in transloading rather than direct carload access.
  - This finding is consistent with the commercial initiatives of both railroads, who have increased their transloading activity and marketing in recent years.
- Transloading would have favorable impacts on truck VMT and emissions
  - Since transloading converts multiple truckloads in to a smaller number of rail carloads, the impact on VMT and emissions is potentially greater.
  - Transloading is best conducted through numerous local and regional sites, and does not exhibit the same economies of scale and service that require large regional intermodal terminals. The requirement for local pick-up and delivery truck trips could therefore be lower.
- Since the industrial products typically transloaded are less time-sensitive than intermodal shipments, railroads have additional flexibility in using their line capacity and operating windows.

***Exhibit 135: Rail/Truck Transloading Potential***

SCAG Region	Annual Truck VMT Reduction by Cordon Point					Totals
	I-5 North	SR14	I-15 North	I-10	I-40	
Los Angeles Co.	2,244,465	1,432	3,470,820	7,164,909	1,125,296	<b>14,006,923</b>
Orange Co.	1,482,926	711	714,545	1,389,908	320,978	<b>3,909,069</b>
Ventura Co.	147,617	39	219,931	829,882	49,713	<b>1,247,181</b>
Riverside Co.	623,832	156	257,870	447,056	73,282	<b>1,402,196</b>
San Bernardino Co.	468,892	127	263,428	764,866	71,999	<b>1,569,312</b>
Victor Valley	210,013	23	54,399	305,327	15,538	<b>585,300</b>
Coachella Valley	171,788	251	150,961	124,343	22,474	<b>469,817</b>
<b>Total</b>	<b>5,349,534</b>	<b>2,740</b>	<b>5,131,954</b>	<b>11,026,290</b>	<b>1,679,280</b>	<b>23,189,798</b>

## Rail Intermodal Potential

- Diversion of long-haul truckload and LTL traffic to rail intermodal service could divert on the order of 107,000 annual trucks and over 13 million VMT from regional highways at year 2000 traffic levels.
- The long-haul corridors linking the SCAG region with the rest of the nation are already among the most successful and busiest intermodal routes, with higher intermodal market shares than the national average.
  - The SCAG region already has some of the nation's busiest intermodal facilities. The expected growth in rail intermodal traffic generated at San Pedro Bay ports will tax both intermodal terminals and linehaul capacity on both railroads.
  - Both railroads, and their predecessors, have encouraged diversion of Southern California truck traffic to intermodal. There is a significant history of marketing and service initiatives aimed at increasing intermodal market share in Southern California.
  - Truckload and LTL motor carriers already use intermodal transportation to an appreciable extent to serve Southern California
  - Given the large expected increase in high-revenue, long-haul international traffic, railroads will be disinclined to dedicate or add capacity for low-revenue, short-haul intermodal business.
- While both railroads continue to pursue greater domestic intermodal market share, it would be overly optimistic to expect dramatic increases.

***Exhibit 136: Rail Intermodal Potential***

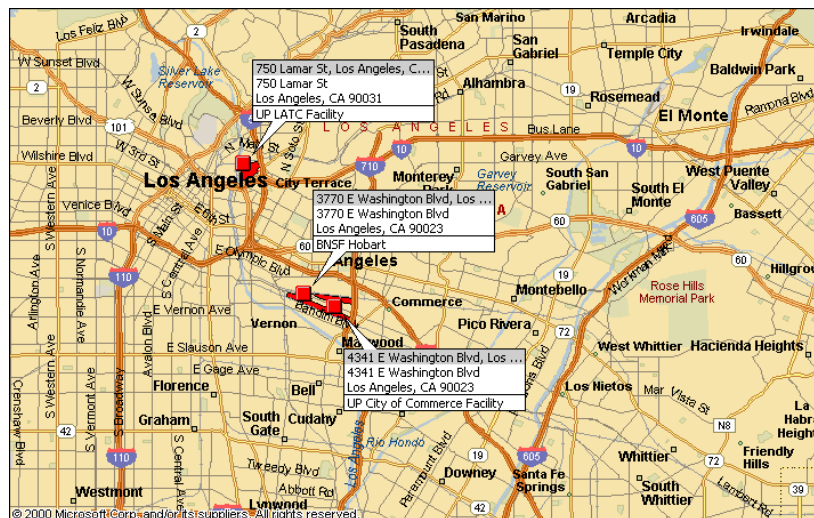
SCAG Region	Annual Net* Truck VMT Reduction by Cordon Point					Totals
	I-5 North	SR14	I-15 North	I-10	I-40	
Los Angeles Co.	1,979,840	7,031	3,849,902	1,566,018	664,086	<b>8,066,877</b>
Orange Co.	1,446,346	3,865	892,360	337,802	135,498	<b>2,815,871</b>
Ventura Co.	20,717	77	163,472	114,586	30,147	<b>329,000</b>
Riverside Co.	481,385	702	203,803	88,511	44,420	<b>818,821</b>
San Bernardino Co.	394,339	656	249,525	147,499	46,736	<b>838,755</b>
Victor Valley	194,746	135	46,168	58,737	8,373	<b>308,159</b>
Coachella Valley	101,494	830	163,886	11,004	9,945	<b>287,159</b>
<b>Total</b>	<b>4,618,867</b>	<b>13,296</b>	<b>5,569,118</b>	<b>2,324,158</b>	<b>939,205</b>	<b>13,464,643</b>

\* Adjusted for drayage requirements

## Congestion Implications for Intermodal Transportation

- Intermodal transportation requires drayage for pick-up and delivery. Where drayage moves travel the same urban freeways as the truck trips they might replace, there is little net savings in either truck trips or emissions.
- The major Los Angeles intermodal facilities are centrally located, as shown below. While this maximizes their market coverage and concentrates traffic volume, it also requires drayage trips over some of the most congested regional routes.
- Creating a series of intermodal facilities in outlying areas might disperse and shorten the drayage trips. The current BNSF and proposed UP facilities in the Inland Empire are examples. A balance must be struck, however, between the advantages of dispersed intermodal terminals and the need to assemble sufficient volume for frequent service.

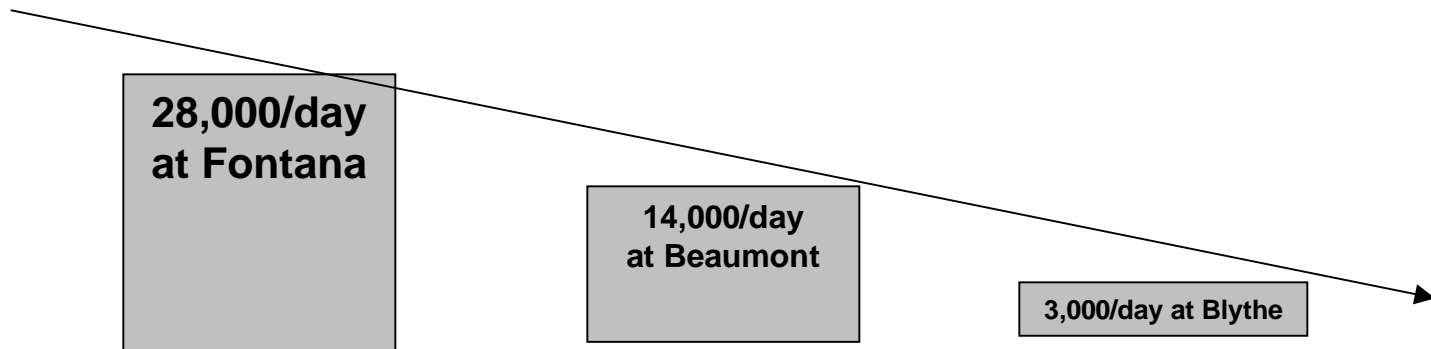
***Exhibit 137: Intermodal Congestion Implications***



## The congestion “taper” limits the benefits of intermodal diversions

- Truck and auto traffic volumes on regional highways are heaviest near the regions center and “taper” towards the edges, as illustrated below.
- The majority of the truck VMT saved through diversion to intermodal would be in the outlying areas, since the intermodal options still requires drayage in the central regions.
- For example, on an intermodal trip between Fontana and the I-10 cordon point, most of the VMT saved would be east of Beaumont, where there is much less truck traffic to begin with.

***Exhibit 138: Truck Volume “Taper” on I-10***



## Short-Haul diversion potential is constrained by rail circuitry

- Rail routes to regional boundaries (cordon points) are significantly longer than highway routes in many instances
- The largest potential short-haul market is between the SCAG Region and Northern California, along the I-5 corridor. The primary rail route to the north, paralleling Interstate 5, is through Cajon Pass, which is an average of 63 miles longer than the highway route to the regional boundary. The most important part of the SCAG region is Los Angeles County, for which the circuitry adds over 100 miles on trips to Bakersfield and beyond. Since the distances to Northern California markets are typically 400-600 miles, the rail route is about 20% longer.
- The other routes have less circuitry, both as an absolute distance and as a percentage.
  - The rail route (UP's Saugus line) to the SR14 market in Lancaster/Palmdale is only slightly longer than the highway, but the total distance is too short to make rail advantageous without very special circumstances.
  - For the I-15 corridor the largest short-haul market is almost certainly Las Vegas, which is 285 miles from Los Angeles by highway but 315 miles by rail. The difference makes it difficult for rail or intermodal options to be fully competitive on both cost and service.
  - The I-10 and I-40 corridors have relatively little rail circuitry, and in some combinations rail is shorter.

### ***Exhibit 139: Truck and Rail Cordon Point Miles***

Truck and Rail Cordon Point Distances (Miles)										
	I-5 North		SR14		I-15 North		I-10		I-40	
	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail
Los Angeles Co.	71	196	81	78	243	283	253	247	273	255
Ventura Co.	75	272	95	96	278	360	299	324	322	331
Riverside Co.	129	149	107	145	204	236	201	200	249	208
Orange Co.	107	228	118	110	227	315	248	279	272	287
San Bernardino Co.	115	138	92	86	194	225	200	189	238	197
Victor Valley	103	99	107	153	103	159	224	293	127	149
Coachella Valley	254	215	157	163	254	302	125	112	201	274
Avg. Rail Circuitry		63		11		54		13		3
Avg. % Circuitry		52%		10%		25%		6%		1%

## Regional Railroad Capacity

- The regional rail network has reserve capacity for traffic that might be diverted from the highway, but there are competing uses for that capacity
- High Capacity Lines
  - The major main lines serving the SCAG region are high-capacity routes with reserve capacity, although prioritization will be necessary.
  - When traffic has grown, railroads have typically invested in higher capacity to handle it.
  - Railroads ordinarily give priority to long-haul traffic with higher revenue potential over shorter-haul traffic with lower yield
- Competing Demand
  - The growth of the Southern California economy and the portions of that economy engaged in large-scale manufacturing and processing imply a long-term need for rail carload service.
  - The existing Southern California domestic intermodal market is growing, with concomitant demands for both capacity and service
  - The largest single engine of intermodal growth is international trade through the San Pedro Bay ports, which could absorb most or all of the existing excess rail system capacity

## Public Support for Rail Capacity and Facilities

- Where the potential for traffic and emissions mitigation is constrained by rail capacity, a case can be made for public sector support.
- Truck diversion potential is greatest in “short-haul” rail corridors
  - The largest volume of “long-haul” trucks are in trips under 500 miles, which is “short-haul” low-revenue traffic for the railroads.
  - The largest potential diversions of SCAG region truck traffic are in the I-5 corridor, where short-haul rail carload/transload and intermodal traffic has difficulty competing due to geography.
  - Although the railroads recognize the potential and have taken the initiative to market their services in the I-5 corridor, market penetration has been small.
- Both intermodal and transloading services require investment in facilities
  - Existing intermodal facilities are nearing capacity, and their expansion potential in existing sites is limited.
  - Transloading facilities are primarily private concerns, but their development has been supported by the railroads to some extent
- Public capital or operating support may be required to realize the potential for short-haul truck diversions.
  - Railroads cannot be expected to devote scarce line and terminal capacity to short-haul opportunities without adequate returns.
  - The public benefits of additions to rail line and terminal capacity may be justified by the potential for truck traffic diversions.